

COMPOSITION, APPARATUS, AND METHOD OF CONDITIONING SCALE ON A METAL SURFACE

ABSTRACT OF THE DISCLOSURE

A composition and apparatus and method of using the composition for aqueous spray descaling or conditioning of scale or oxide on metal surfaces, especially stainless steel strip or the like, in one embodiment, although it can be used to descale or condition oxide or scale on other work pieces such as metal bar, or even discrete objects. An aqueous solution having a base composition of an alkali metal hydroxide, such as sodium hydroxide, potassium hydroxide, or a mixture of alkali metal hydroxides such as sodium hydroxide and potassium hydroxide is used. The aqueous solution may contain certain additives to improve the descaling performance of the salt. In one embodiment, the solution is used to condition the scale or surface oxide on a strip of stainless steel. The strip of steel is at a temperature between the melting point of the alkali metal hydroxide in anhydrous form and a temperature at which the Leidenfrost effect appears. One or more nozzles is provided to spray the solution, and the heated strip is passed by the nozzle or nozzles where the solution is sprayed on the surface or surfaces of the strip that have the scale or oxide. The invention also includes the apparatus and control thereof for the spraying of the solution.